CHAPTER 5

LIST OF EFFECTIVE TEMPORARY REVISIONS

FOLLOWING IS A COMPLETE LISTING OF ALL ACTIVE TEMPORARY REVISIONS (TR'S). TR'S NOT LISTED SHOULD BE REMOVED. THE ATA NUMBER, CONFIG CODE AND PAGE NUMBER IDENTIFIES THE PAGE PRECEDING THE TR.

TR NUMBER	ATA NUMBER	CONFIG CODE	PAGE NUMBER	TR DATE

NONE

CHAPTER 5

TIME LIMITS/MAINTENANCE CHECKS

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CHAPTER 5

TIME LIMITS/MAINTENANCE CHECKS

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TIME LIMITS/MAINTENANCE CHECKS

1. General

R This chapter contains the manufacturers recommended unscheduled
R maintenance checks and inspections pertaining to the L-1011
R aircraft.

R NOTE: For scheduled maintenance checks, time limits and
R inspections, refer to airline Operational Specifications.

TIME LIMITS

1. General

R Refer to airline Operational Specifications for required time
R limits concerning inspections, maintenance and overhaul of the
R aircraft, its systems and units, and life of parts.

UNSCHEDULED MAINTENANCE CHECKS

1. General

The unscheduled maintenance checks are those checks and inspections on the aircraft, its systems and units which are required because of special or unusual conditions, and which are not related to, nor specified, by flight time or calendar limits.

CR HARD OR OVERWEIGHT LANDING - MAINTENANCE PRACTICES

CR 1. General

CR A. Hard Landing

CR (1) Whenever an aircraft makes a landing at what is CR believed to be an excessive rate of sink, the landing CR will be considered as a hard landing and the aircraft CR should be inspected per form M11-05-01.

CR NOTE: Acceleration data obtained from the flight CR recorder is not acceptable as an indication of a CR hard landing.

CR If the hard landing is combined with high drag CR or side load, additional inspection is required CR per the applicable condition.

CR (2) When the amber or red hard landing lights on the weight CR and balance indicator illuminate and there is no log CR book entry of a hard landing no further action is CR required. If the indication is confirmed by a log book CR entry of a hard landing then the aircraft should be CR inspected per Paragraph (1).

CR B. Overweight Landing

CR (1) Whenever the aircraft makes a landing exceeding the CR weight limitations of Section I of the FAA Approved CR Flight Manual, the landing will be considered as an CR overweight landing. There are two categories of CR overweight landing:

CR (a) Normal overweight landing where an overweight CR landing is made at a normal or less rate of sink.

CR (b) Hard overweight landing where an overweight CR landing is made at an excessive rate of sink; a CR hard overweight landing shall be treated as a hard CR landing.

CR (2) The distinction of normal or hard must be obtained from CR the Flight Crew, usually from the log entry. In the CR absence of any such distinction, the overweight landing CR shall be considered as hard.

CR (3) A normal overweight landing check is performed per CR M99-05-02 check sheet. If any discrepancy is noted

CR during this check, all items per Phase II Inspection,
CR 5-50-01, must be checked.

CR (4) Visually check the following items (a) thru (e) for
CR buckles, distortion, cracks, flaking paint, loose or
CR missing fasteners, fluid leaks or other evidence of
CR damage.

CR (a) Check MLG struts, links, trunnions, support
CR fittings, attach points, wheel well structure as
CR visible from ground.

CR (b) Check NLG struts, links, trunnions, support
CR fittings, attach points, wheel well structure as
CR visible from ground.

CR (c) Check pylon skin panels and doors as visible from
CR ground.

CR (d) Check fuselage and wing lower surfaces (including
CR TE and LE flap lower surfaces in stowed position
CR and aileron lower surfaces) as visible from
CR ground.

CR (e) Check empennage horizontal and vertical surfaces
CR including elevator lower surfaces) as visible from
CR ground.

CR (f) Advise MCIMD, Copy MCIER, of accomplishment and
CR findings, by sending wire below.

CR (5) MCIMD COPY MCIER

CR M99-05-02 - NORMAL OVERWEIGHT LANDING CHECK COMPLETED
CR ON

CR AIRCRAFT ____ DATE _____

CR STATION _____

CR FINDINGS LISTED BELOW:

CR FOREMAN/SUPERVISOR

HARD OR OVERWEIGHT LANDING - INSPECTION AND CHECK

1. General

This examination is divided into Phases I and II. If Phase I inspection reveals no damage, no further inspection is necessary. If Phase I inspection reveals any evidence of damage, Phase II inspection

2. Inspection/Check

CR A. Phase I Inspection - Obtain M11-05-01 Form

The Phase I inspection is a general external walkaround inspection which includes the following items:

(1) Nacelles and Pylons

(a) Check external surfaces of nacelles and pylons for indications of buckling, cracks, slippage at joints and loose or missing fasteners.

NOTE: Those aircraft on which SB 57-042 has not been incorporated must be checked in accordance with instructions in 5-50-12.

(2) Wing and Flaps

(a) Check the lower external wing surface ahead of the main landing gear, the leading edges adjacent to the pylon and fuselage, and the flap supporting mechanisms for indications of buckling, cracks, slippage at joints and loose or missing fasteners.

(b) Inspect trunnion beam lower flange to skin attachment collars for distortion, and for slippage of trunnion flange with respect to lower skin at forward end of trunnion.

(3) Main Landing Gear

(a) Check structural members for obvious damage.

(b) Check trunnion areas for obvious damage.

(4) Nose Landing Gear

(a) Check structural members for obvious damage.

(b) Check trunnion areas for damage.

(5) Fuselage Shell

(a) Inspect skin in FS 750 to FS 900 area, below cargo door sill (stringers 27RH to stringer 47LH).

(b) Inspect skin below and aft of C-3 cargo door sill longeron.

B. Phase II InspectionThis inspection includes all of the items in Phase I, and is a detailed inspection covering the following items:

C Phase II inspection is required when damage is found during
C Phase I inspection per M11-05-01 sheet (hard landing, off
C runway, or off taxi strip structural check), or when
C discrepancy is found during normal overweight landing check
C per M99-05-02 sheet.

(1) Primary pylon support fittings at the wing front beam
R for distortion and obvious damage. The engine pylon
R rear fitting drag strut bearing must be inspected in
R accordance with instructions in MM5-50-12.

(2) Lower surface of the main gear trunnion beam attachment at the wing rear beam for cracks, buckling, and loose fasteners.

(3) The forward and aft engine mount fittings, and mount bulkheads for distortion, cracks and loose fasteners.

(4) Main landing gear doors and attachments for distortion and obvious damage.

(5) Tires for abrasions, cuts, proper inflation.

(6) Struts for leakage and proper extension. Clean exposed piston with rag, moistened with hydraulic fluid (MIL-H-5606).

(7) Wheels for cracks.

(8) Access doors of the "S" duct for buckling, cracks and loose fasteners.

(9) APU support fittings and muffler shroud alignment.

(10) All air bleed duct connections to the APU and engines for alignment and security.

(11) Entire aircraft for fluid leaks.

(12) General inspection of empennage particularly at hinge attachments, for buckling, cracks, and loose fasteners.

(13) Operate controls through travel ranges for smoothness of operation.

3. Damage Repair or Component Replacement

If damage is discovered during the Phase II inspection requiring extensive repair or component replacement, refer to the Structural Repair Manual, or the Maintenance Manual as appropriate.

SEVERE TURBULENCE OR BUFFETING CONDITION INSPECTION AND CHECK

1. General

When the flight crew reports that the aircraft has been subjected to severe turbulence or buffeting, a structural inspection is required.

2. Severe Turbulence Inspection

Many factors in addition to c.g. acceleration affect the severity of loads applied to an aircraft in service. These include gross weight, fuel loading, load distribution, the pilots corrective measures, the airplanes pitch, roll, and yaw motions, the rate of load application, and the frequency content and duration of the turbulence. Hence, it is unrealistic to use an acceleration limit alone to define severe turbulence. Primary reliance must still be placed on the judgement of experienced pilots. Vertical accelerations read from the flight recorder may be useful as a guide in determining the necessity for a "severe turbulence" inspection. Such recordings should not, however, be used to override a pilots judgement that an inspection be made.

A. Vertical Acceleration: With Flaps Up

In utilizing the flight recorder, it is recommended that the following vertical acceleration limits be used as a criterion in determining when an inspection is required:

L-1011: Plus or minus 1.15g - that is, recorded accelerations of positive 2.15g and negative 0.15g.

In selecting these limits, which are considerably less than the limit design static values, attempts have been made to compensate for the fact that c.g. acceleration is not a conservative indication of the severity of loads on the structure.

B. Vertical Acceleration: With Flaps Down

Emphasis must be made first that the flaps should always be up for flight in severe turbulence unless this is clearly impracticable. The reasons for this recommendation are as follows:

(1) In the structural design of the L-1011, gusts in excess of 25 fps are not considered in the flaps-extended

R configuration. In contrast, the clean airplane is
R designed for a 66 fps gust at comparable airspeeds.

R (2) With flaps extended, a large down-balancing tail load
R is generally present. This adds to the horizontal tail
R and aftbody loads produced by the turbulence.

R (3) The flaps are loaded primarily as a result of dynamic
R pressure resulting from airplane forward speed.
R Inadvertent speed increases beyond the airplane placard
R speed due to upsets resulting from turbulence - in
R addition to head-on gusts themselves - can result in
R flap loads in excess of design. Such loads,
R incidentally, are not reflected in c.g. accelerations.

R For those cases where it is not practical to retract the
R flaps - as in takeoff, landing, or flying in a holding
R pattern where the maximum speed is severely restricted - it
R is suggested that an increment of vertical acceleration of
R plus or minus 0.6g (recorded accelerations in excess of 1.6g
R or less than 0.4g) be used as a criterion for conducting a
R turbulence inspection.

R C. Lateral Acceleration

R The lateral acceleration is an even less adequate measure of
R the severity of structural loading than is the vertical
R acceleration.

R While the elastic mode response has a significant effect on
R the acceleration - an effect which varies with flight
R condition - it tends to have a much smaller effect on
R structural loads.

R D. Longitudinal Acceleration

R The longitudinal acceleration is only remotely related to
R loads and is of no assistance in determining when an
R inspection should be made.

R 3. Inspection/Check

A. The internal and external areas of the aircraft will be structurally inspected as follows:

(1) Exterior surface of lower fuselage (below WL200) between FS 983 and FS 1365 chords and webs, for distortion, flaking paint, cracks, and loose or missing fasteners.

If any damage is observed on these parts, inspect interior structure in affected area.

(2) Accessible interior structure in fuselage, aft of rear pressure bulkhead, for distortion, cracks, flaking paint, and loose or missing fasteners.

(3) Afterbody bulkheads at FS 1809, FS 1860 and FS 1989, horizontal stabilizer hinge fittings, horizontal stabilizer center box center line splice and actuator attach points on the stabilizer, and fuselage frame FS 1860.

(4) Airgate and rub strips left and right for evidence of distortion or damage, evidenced by excessive abrasion of rub strip.

(5) Center engine support structure for cracks, buckles, or loose or missing fasteners.

(6) Exterior surfaces around top and bottom of wing-to-body attachment, including wing-to-body fairing, for distortion, cracks, and pulled or missing fasteners.

If any damage is observed, examine fuselage to wing joints between FS 983 and FS 1212, upper and lower intersection of wing.

(7) Wing exterior surfaces at skin splices for misalignment, and pulled or missing rivets, and along trailing edge upper surface for skin buckles.

If any exterior damage is observed, inspect all accessible internal primary structure in affected area for distortion, buckling, cracks, flaking paint, and pulled or missing fasteners.

(8) Wing control surfaces, and attachments at wing front and rear spars for cracks, pulled or missing rivets, and for evidence of binding.

(9) Horizontal stabilizer exterior surfaces for evidence of buckling, checking particularly at skin splices for cracking, yielding, and pulled or missing fasteners.

If any exterior damage is observed, inspect spars, and all accessible internal primary structure in affected area for distortion or buckling, cracks, flaking paint, and pulled or missing fasteners.

(10) Elevator external surfaces for cracks, pulled or missing fasteners, and hinge bearings, and actuator bearings for evidence of binding.

If any external damage is observed, inspect the elevator front spar web for distortion, flaking paint, cracks, and pulled or missing fasteners.

(11) Two left and two right outboard counterweight supports at elevator front spar for cracks.

(12) Fin and rudders in same manner as horizontal stabilizer and elevators in Steps 3A(9) and (10).

(13) Flight controls for freedom of movement.

If any unusual handling conditions are observed, check all flight controls for control force requirements, and cable tensions.

(14) Pylon panels and doors, and lower surface of nacelle cowlings for buckling, cracks, pulled or missing fasteners, or any unusual external condition.

If such conditions are observed, remove pylon and nacelle access panels and inspect internal structure for buckling, twisting, cracks; hoses & ducting for
R secure connections.

(15) Wing, nacelles, fuselage external surfaces, and all landing gear wheel wells, for evidence of fuel, or any other fluid leakage.

4. Alignment

If the preceding inspection reveals damage requiring an alignment check, refer to the Structural Repair Manual, 51-70-00, Alignment and Symmetry Check Procedures.

EXCEEDING FLAPS DOWN SPEED - INSPECTION AND CHECK

1. General

When the FLAPS DOWN placard speed has been exceeded, the flaps, flap areas, flap linkages and fittings must be structurally inspected for condition.

2. Inspection/Check

A. The flaps and flap surrounding area will be structurally inspected as follows:

(1) All external flap and vane skin surfaces for distortion, buckling, loose or missing attachments. All vane-to-flap linkage, and flap interconnect fittings.

(2) All fairings, tracks, carriages, yokes, ballscrew actuators, gearboxes and supports, mounts and surrounding structure for condition, security, cracks, distortion, and loose or missing attachments.

(3) Wing flap system operation. Observe for smooth movement, positive stop at all selected positions, and freedom from chatter. At each selected position, shake the flaps to check for worn tracks, and/or loose carriages.

3. Repair of Damage or Component Replacement

If the preceding inspection reveals damage requiring repair or component replacement, refer to the Structural Repair Manual, or the Maintenance Manual as appropriate.

R SNOW OR ICE CONDITION - INSPECTION AND CHECK

R 1. Referenced Procedures

R 12-30-01 Snow and Ice Removal - Servicing

R 30-00-00 Ice and Rain Protection - Description and Operation

R 2. Inspection/Check

R A. Whenever icing or snow conditions exist, examine the
R airplane surfaces for accumulation of ice or snow prior to
R flight. Particular attention should be given to the
R following areas:

R (1) Upper surfaces of fuselage, wings, stabilizer, control
R surfaces and their hinge points.

R (2) Wing leading edge slat actuating screw jacks, trailing
R edge flap actuating screw jacks, tracks and vane
R actuating linkages.

R (3) Pitot static tubes, total air temperature sensors,
R angle of attack sensors, and static ports.

R (4) Engine inlets and APU load compressor inlet.

R B. If ice or snow exist:

R (1) Remove snow or ice from airplane surfaces (Ref.
R 12-30-01, Snow and Ice Removal).

R (2) Pitot static tubes, total air temperature sensors and
R angle of attack sensors are heated electrically. Avoid
R damage to these units during ice or snow removal (Ref.
R 30-00-00, Ice and Rain Protection).

R (3) Remove snow or ice from engine inlets and APU load
R compressor inlet (Ref. 12-30-01, Snow and Ice Removal).

LIGHTNING STRIKE CONDITION - INSPECTION AND CHECK

1. General

C NOTE: As far as what the flight crew observes and reports in
C the log book, lightning strike and static discharge are
C synonymous, regardless How stated.

The L-1011 airplane design incorporates all necessary and known lightning strike measures. The basic protection is the nearly all metal exterior structure which acts as a shield, protecting the interior from direct strikes and preventing coupling of electromagnetic energy into the airplane wiring.

An airplane flying through or in the vicinity of an electrical storm may become part of the discharge path. Flight crews may not be aware of lightning activity as they pass through a storm area and, therefore, may not report this fact. However, when electrical storms are prevalent or reports indicate the airplane
C may have passed through an electrical storm area, an examination
C should be made for damage. During a lightning strike, the current enters the airplane at one point and exits at another, usually at the airplane extremities. It is in these areas, wing tips, nose and tail sections, where damage is most likely to occur. Burning and/or eroding of small surface areas of the airplane skin, trailing edge, or structure may be detected during inspection. The lightning strike may cause a series of small pin holes in a tree like pattern, similar to the veins of a leaf. The edges of the holes will be burned and coated with oxides or soot. In most cases, the damage is obvious; in other cases, however, hidden damage may be present.

NOTE: There are no areas on the L-1011 which require degaussing after a lightening strike.

2. Referenced Procedures

	23-61-00	Static Discharge System - Inspection and Check
	34-33-00	Instrument Landing System (ILS) - Description and Operation
R	34-57-03	ADF Sense Antenna - Removal and Installation
	53-51-00	Radome - Description and Operation
R	57-55-52	Anodic Plates - Removal and Installation

3. Inspection/Check

A. Nose Section

C (1) Check exterior and interior radome for damage.

C (2) Check radome lightning protection strips for damage (Ref. 53-51-00, Radome).

C (3) Check glide slope antenna, localizer antenna for burning or pitting [Ref. 34-33-00, Instrument Landing System (ILS)].

C (4) Check weather radar antenna, reflector, drive motor, clutch, gearing and feed assembly for damage.

CR (5) Check pitot-head openings for burns.

B. Fuselage

CR (1) Check fuselage exterior surface for burns or eroding.

C (2) Check all antennas for evidence of damage. Replace ADF sense antenna lightning arrestor if there is evidence of lightning strike (Ref. 34-57-03, ADF Sense Antenna).

C. Empennage Section

C (1) Check vertical stabilizer, horizontal stabilizer, rudder and elevators for burns, eroding, and for loose
C or missing rivets. Check for damage to hinge mechanism.

C (2) Check static dischargers on trailing edges and tips for damage.

D. Wing Areas

C (1) Check wing tips for burns and eroding. Check wing tip strobe lights and navigation lights for operation and cracked lens.

C (2) Check fuel vent outlets for burns and eroding.

(3) Check all control surface hinges for damage.

C (4) Check static dischargers. Replace if damaged (Ref. 23-61-00, Static Discharge System).

C (5) Check sacrificial anodic plates. Replace if damaged (Ref. 57-55-52, Anodic Plates - Removal and Installation).

E. Pylons and Engines

C (1) Check pylon and engine areas for burns and eroding.

C 4. Operation and Check

C A. Check operation of pitot-heat and operation of all radio
C communication and navigation system for normal operation.

C B. Check magnetic compass and remote compass systems for normal
C operation and accuracy.

EXCEEDING LANDING GEAR DOWN SPEED - INSPECTION AND CHECK

1. General

When the landing gear has been extended at speeds in excess of the maximum landing gear extension speed, the following inspection for failure, distortion and security shall be performed.

2. Referenced Procedure

32-30-00 Extension and Retraction - Description and Operation

3. Inspection/Check

A. Nose Landing Gear

(1) Nose gear steering cables, pulleys, brackets and cable guard tubes.

(2) Taxi lights, taxi light wiring and air/ground sensing switch wiring.

(3) Hydraulic lines and mounting brackets.

(4) Electrical conduits and attachments.

(5) Nose gear doors.

(6) Axle shield.

(7) Landing gear down lock pin container cover.

(8) With forward doors open, inspect interior of nose wheel well.

B. Main Landing Gear, Left and Right

(1) Fixed door (on structure).

R (a) Check inboard and outboard mounting beams for
R warping and twisting by sighting down beam.

R (b) Check mounting castings for cracks or failure.

(c) Check center mounting beam spring loaded clevis bolt nuts, a minimum of one and one-half clevis bolt threads must be showing.

(2) Hinged door, outboard.

(3) Hydraulic lines and attachments, electrical conduits, attachments and floating positioner.

(4) With inboard doors open, inspect interior of main wheel wells.

R (5) On aircraft 001-018 with SB32-041 and 019-999,
R truck gravel shield.

C. Landing Gear Retraction Test

(1) If above inspection reveals damage or if distortion to any wheel well door is suspected, perform normal rate retraction and extension of all three landing gear assemblies to determine if wheel well door misalignment, distortion or interference exists during retraction and extension (Ref. 32-30-00).

R EXCEEDING DESIGN SPEED (Vmo/Mmo) - INSPECTION AND CHECK

R 1. General

R When the airplane has been flown at speed in excess of Maximum
R Operating Speed (Vmo) the following inspection shall be
R performed.

R 2. Inspection/Check

R A. Perform a careful walkaround inspection of the airplane
R exterior to detect evidence of distortion, loose or missing
R fasteners, missing panels or panel misalignment with
R adjacent structure. Pay particular attention to the
R following:

R (1) Nose landing gear wheel well doors.

R (2) Environmental control system ram air inlet internal
R walls.

R (3) No. 1 and No. 3 engine cowl panels and wing pylon
R fairings and access panels.

R (4) Wing to fuselage fillets and fairings.

R (5) Main landing gear wheel well doors.

R (6) Center engine cowl panels.

R B. If any of the descrepancies described above are found, an
R internal inspection of the supporting structure of that
R immediate area shall be performed for evidence of further
R damage.

BIRD STRIKE - INSPECTION AND CHECK

1. General

When a bird strike has been encountered, the airplane should be inspected for damage prior to the next flight.

2. Referenced Procedures

72-31-02	L.P. Compressor Rotor Disc and Blades - Approved Repairs
72-31-03	L.P. Compressor Spinner and Anti-Icing Tubes - Maintenance Practices

3. Inspection/Check

A. Perform a careful walkaround inspection of the airplane exterior to detect evidence of damage, distortion, loose or missing fasteners, missing panels. Pay particular attention to the following areas:

C C (1) Nose radome. Examine outside surface. If evidence of strike is found, inside surfaces must be examined.

(2) Flight station windshield.

(3) Wing leading edge, leading edge slats, and wing tips.

(4) Horizontal stabilizers, vertical stabilizer and tips.

(5) Air cycle machine ram air inlets.

(6) Landing light, taxi light and runway turnoff light lens.

(7) Leading edges of wing engine inlet cowl and center engine "S" duct.

(8) Engine L.P. fan blades and fan spinners and P1 probes (Ref. 72-31-02 and 72-31-03 for allowable damage).

CR CR (9) Bird strike/suspected bird strike check (Ref. 71-00-00/601 and 71-99-00/101).

LATERAL IMBALANCE - INSPECTION AND CHECK

1. General

R If an aircraft is towed exceeding lateral balance limitations,
R or following a flight crew report that taxiing limits have been
R exceeded, the following inspection shall be performed.

R 2. Inspection/Check

A. Perform an inspection of the main landing gear (heavy side only) to detect evidence of damage, distortion, cracks, and for loose or missing fasteners at the following locations:

(1) Trunnion, upper side brace and lateral brace attach points.

(2) Side brace/main strut interface.

(3) Torque arms and attachments.

(4) Strut for leakage and proper extension.

(5) Tires for scrubbing, cuts and proper inflation.

(6) Wheels.

B. If Items (1), (2) or (3) above are found damaged, inspect the main gear trunnion beam attachment at the wing rear beam for cracks, buckling and for loose fasteners. Inspect for evidence of fuel leakage around periphery of fastener nuts.

HIGH ENERGY STOP - INSPECTION AND CHECK

1. General

A high energy stop is defined as a rejected takeoff, or any stop which creates an energy level of 25 million foot-pounds or more per wheel.

Because of high temperatures generated by brakes and wheels after stops of over 25 million foot pounds of energy per wheel, special precautions and checks are required.

NOTE: The brake temperature gage and the HIGH TEMP and OVERHEAT warning lights on the Flight Engineers panel do not cover the complete spectrum of the brake temperatures. The relatively low settings of the HIGH TEMP and OVERHEAT warning lights, 275 and 400 degrees centigrade respectively, provide warning to the flight crew not to take off when the brake temperature is reaching that range, or provide means to determine if one or more tires or brakes have failed. These lights may be illuminated during normal operation as well as during a high energy stop condition.

A high energy stop condition normally should be reported by the flight crew in terms of foot-pounds or as being in the caution zone or the danger zone (Ref. Para. 3A or B). The flight crew determines the condition by referring to the brake energy limits chart in the Performance Engineers Manual or the Operating
CR Manual (Ref. Figure 601, Brake Energy Limits Chart).

2. Referenced Procedures

5-50-01	Hard Or Overweight Landing - Inspection and Check
32-11-04	Main Landing Gear Axle - Inspection and Check
32-41-01	Wheel and Tire Assembly - Main Landing Gear - Removal and Installation
32-43-00	Main Landing Gear Brake System - Inspection and Check
32-43-01	Main Landing Gear Brake - Removal and Installation

3. Inspection/Check

A. 25 to 37.5 Million Foot-Pounds (Caution Zone)

WARNING: APPROACH LANDING GEAR AREA ONLY AS NECESSARY DURING FIRST 30 MINUTES. KEEP PERSONNEL CLEAR OF AREA LATERALLY IN LINE WITH WHEELS.

CAUTION: WHEN AIRPLANE HAS STOPPED AND TIRE, OR TIRES, ARE OBSERVED TO BE INFLATED, APPROACH THE LANDING GEAR CAUTIOUSLY FROM THE FRONT AND/OR REAR ONLY. CHOCK WHEELS. DO NOT USE PARKING BRAKES.

(1) Park aircraft clear of ground traffic.

(2) Allow cooling time of 60 to 90 minutes. When brakes have cooled enough to touch, perform visual inspection for tire damage and seal leakage with brake pressure on (Ref. 32-43-00, Page 601).

(3) Actuate brakes several times, checking for leaks. R Check brake wear indicators for allowable wear.

B. Over 37.5 Million Foot-Pounds (Danger Zone)

WARNING: REMAIN CLEAR OF AIRCRAFT MLG AREA; TIRES MAY DEFLATE WITH EXPLOSIVE RESULTS.

CAUTION: WHEN THERMAL PLUGS MELT, DO NOT USE WHEEL OR TIRES AGAIN UNLESS RE-USE HAS BEEN APPROVED BY WHEEL/TIRE MANUFACTURER.

(1) Do not set parking brakes.

(2) Alert or provide appropriate fire fighting equipment for possible fire (tire, grease or hydraulic fluid fire), which may occur up to approximately 45 minutes after stop.

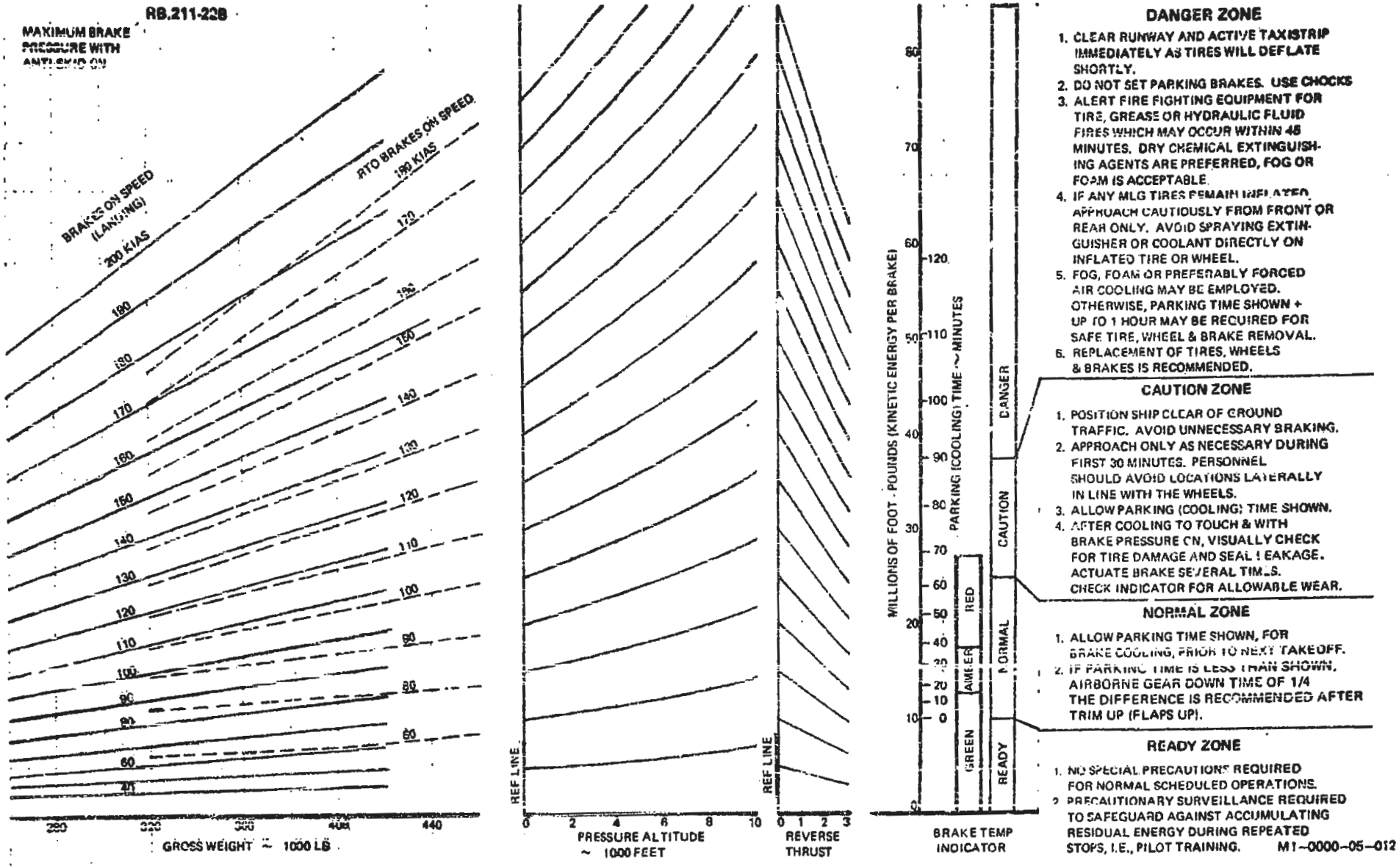
(3) If any MLG tires remain inflated, approach cautiously from front or rear only. Avoid spraying extinguisher or coolant directly on wheel or inflated tire.

(4) Fog, foam, or preferably forced air cooling may be employed; otherwise, parking time up to two hours may be required prior to tire, wheel, and brake removal.

(5) After components have cooled and are safe to approach, replace wheels and tires and possibly the brakes (Ref. 32-41-01 and 32-43-01).

(6) Inspect axles for overheat condition (Ref. 32-11-04).

(7) Inspect main and nose landing gear and adjacent structure for damage (Ref 5-50-01).



DANGER ZONE

1. CLEAR RUNWAY AND ACTIVE TAXISTRIP IMMEDIATELY AS TIRES WILL DEFLATE SHORTLY.
2. DO NOT SET PARKING BRAKES. USE CHOCKS
3. ALERT FIRE FIGHTING EQUIPMENT FOR TIRE, GREASE OR HYDRAULIC FLUID FIRES WHICH MAY OCCUR WITHIN 45 MINUTES. DRY CHEMICAL EXTINGUISHING AGENTS ARE PREFERRED, FOG OR FOAM IS ACCEPTABLE.
4. IF ANY MLG TIRES REMAIN INFLATED APPROACH CAUTIOUSLY FROM FRONT OR REAR ONLY. AVOID SPRAYING EXTINGUISHER OR COOLANT DIRECTLY ON INFLATED TIRE OR WHEEL.
5. FOG, FOAM OR PREFERABLY FORCED AIR COOLING MAY BE EMPLOYED. OTHERWISE, PARKING TIME SHOWN + UP TO 1 HOUR MAY BE REQUIRED FOR SAFE TIRE, WHEEL & BRAKE REMOVAL.
6. REPLACEMENT OF TIRES, WHEELS & BRAKES IS RECOMMENDED.

CAUTION ZONE

1. POSITION SHIP CLEAR OF GROUND TRAFFIC. AVOID UNNECESSARY BRAKING.
2. APPROACH ONLY AS NECESSARY DURING FIRST 30 MINUTES. PERSONNEL SHOULD AVOID LOCATIONS LATERALLY IN LINE WITH THE WHEELS.
3. ALLOW PARKING (COOLING) TIME SHOWN.
4. AFTER COOLING TO TOUCH & WITH BRAKE PRESSURE ON, VISUALLY CHECK FOR TIRE DAMAGE AND SEAL LEAKAGE. ACTUATE BRAKE SEVERAL TIMES. CHECK INDICATOR FOR ALLOWABLE WEAR.

NORMAL ZONE

1. ALLOW PARKING TIME SHOWN, FOR BRAKE COOLING, PRIOR TO NEXT TAKEOFF.
2. IF PARKING TIME IS LESS THAN SHOWN, AIRBORNE GEAR DOWN TIME OF 1/4 THE DIFFERENCE IS RECOMMENDED AFTER TRIM UP (FLAPS UP).

READY ZONE

1. NO SPECIAL PRECAUTIONS REQUIRED FOR NORMAL SCHEDULED OPERATIONS.
2. PRECAUTIONARY SURVEILLANCE REQUIRED TO SAFEGUARD AGAINST ACCUMULATING RESIDUAL ENERGY DURING REPEATED STOPS, I.E., PILOT TRAINING.

M1-0000-05-012

Brake Energy Limits Chart
Figure 601

CR
CR
R EFFECTIVITY: ALL
R
0018

CR DRAGGED TAIL SKID CONDITION - INSPECTION AND CHECK

CR 1. Dragged Tail Skid Condition

CR A. Whenever the tail skid is believed to have scraped the
CR ground during takeoff or landing, perform the check outlined
CR in chapter 32-71-00.

R ENGINE PYLON REAR FITTING DRAG STRUT BEARING
R HARD LANDING/TURBOCENCE - INSPECTION AND CHECK

R 1. General

R If a hard landing and/or turbulence has been experienced, the
R engine pylon rear fitting drag strut bearing must be inspected.

R 2. Inspection/Check

R A. Bearing Inspection

R (1) Fabricate depth gage in accordance with information
R contained in Figure 601.

R (2) Remove pylon skirt fairing access door 453GL on left
P wing and 453GR on right wing (Ref. Fig. 602, Sheet 1).

R CAUTION: USE CARE IN INSERTION OF DEPTH GAGE. THE GAGE CAN
R POSSIBLY HANG-UP ON A SMALL PROTRUDING EDGE OF A
R SOUND BEARING OUTER RACE AND GIVE AN ERRONEOUS
R READING. MANIPULATE GAGE DURING INSERTION TO MAKE
R SURE GAGE BOTTOMS.

R NOTE: It may not be possible, in all instances, to
R insert the gage on both sides of the bearing due
R to an angular misalignment of the drag strut
R with the bearing fitting. Therefore, if the
R gage can be inserted to a depth of approximately
R one inch on either side of bearing fitting, the
R bearing is intact and serviceable.

R (3) Insert short end of depth gage into gap between drag
R strut and fitting (Ref. Fig. 602, Sheets 1 and 2).
R Record depth of gage penetration.

R (4) Repeat Step (3) on opposite side of pylon fitting.

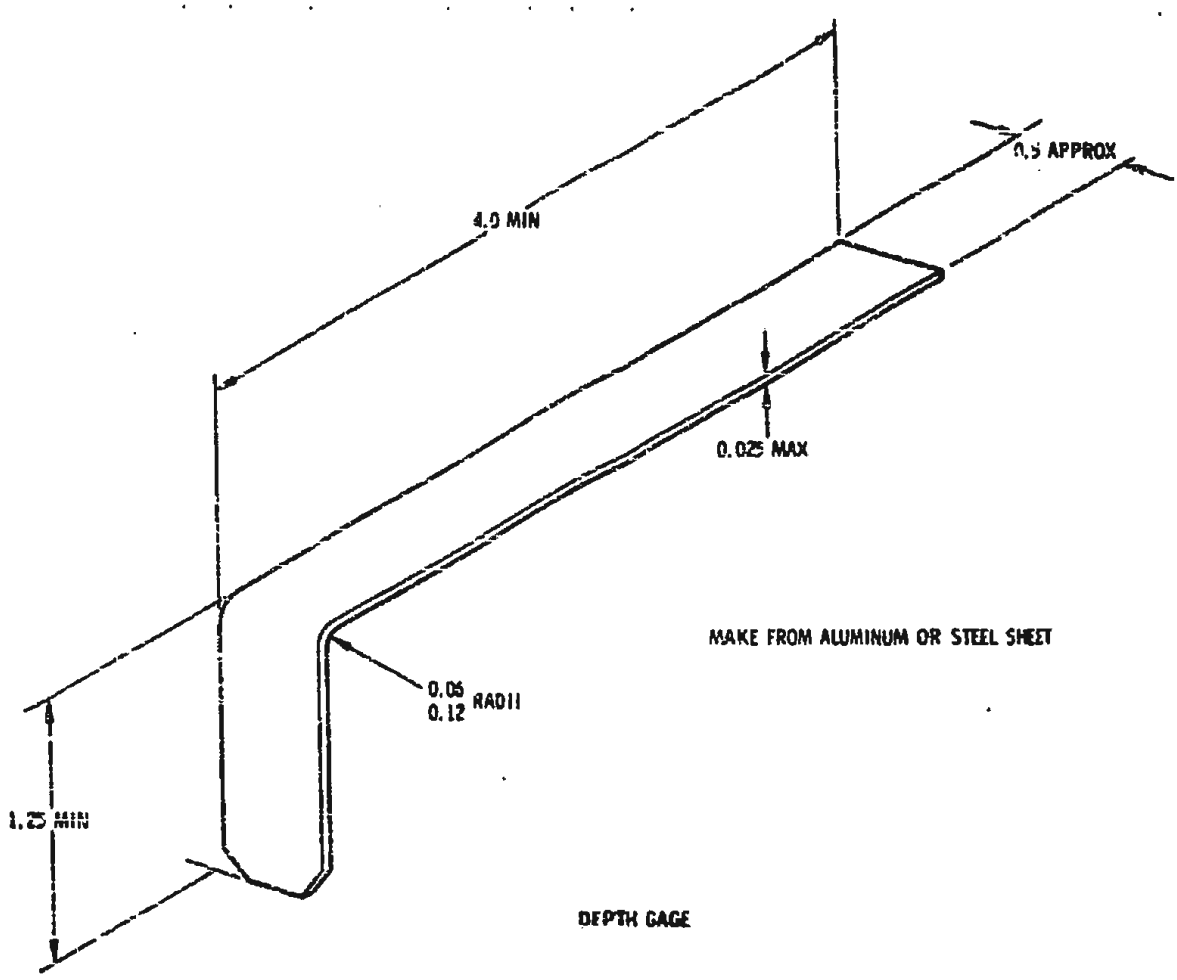
R (5) If gage will not penetrate more than approximately 0.75
R inch, bearing has failed.

R (6) If gage penetrates approximately 1.00 inch, bearing is
R intact and serviceable. Replace access doors.

R B. Service Limitations

R (1) Within 150 hours: Inspect. If two cracked bearings,
R replace one within 150 flight hours of the incident.
R If one bearing is cracked, reinspect the other 600

R flight hour intervals. The broken bearing must be
R replaced within 2400 flight hours after discovery.



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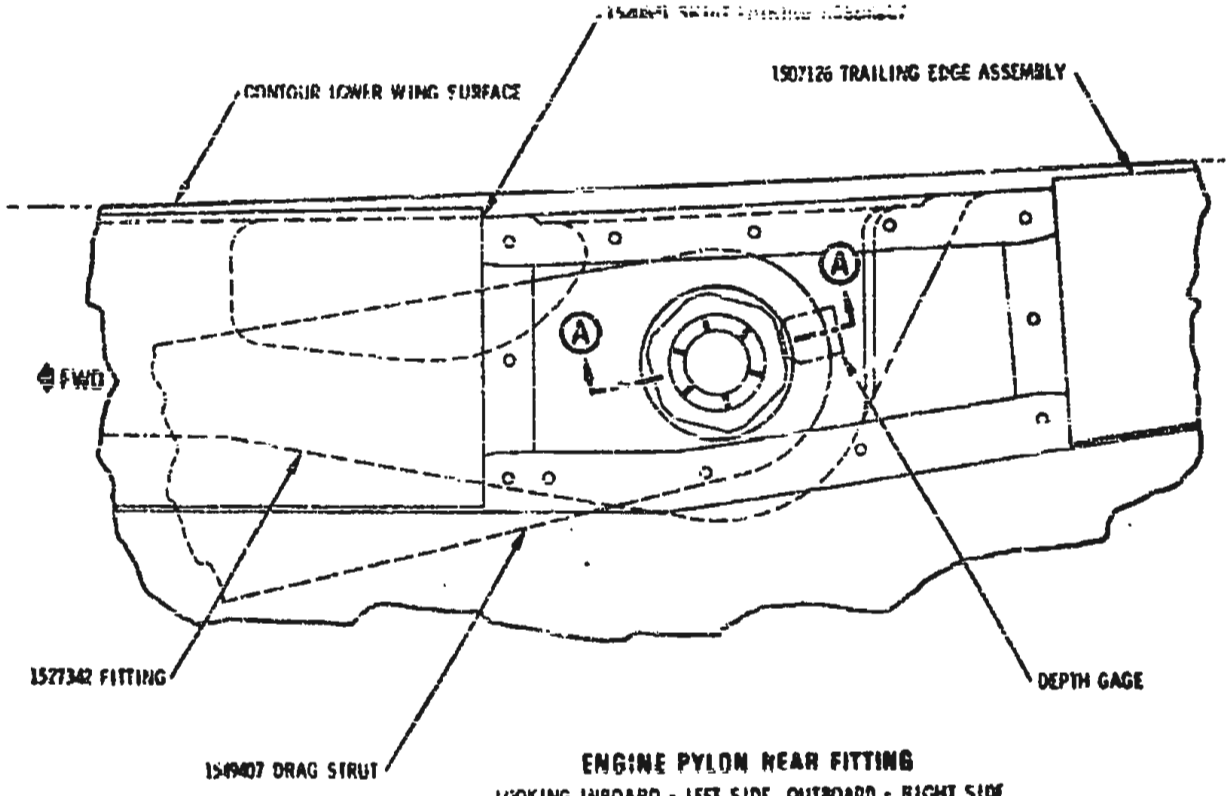
R R Depth Gage, Pylon Rear Bearing
Figure 601

R R EFFECTIVITY: ALL

0018



ENGINE PYLON REAR FITTING

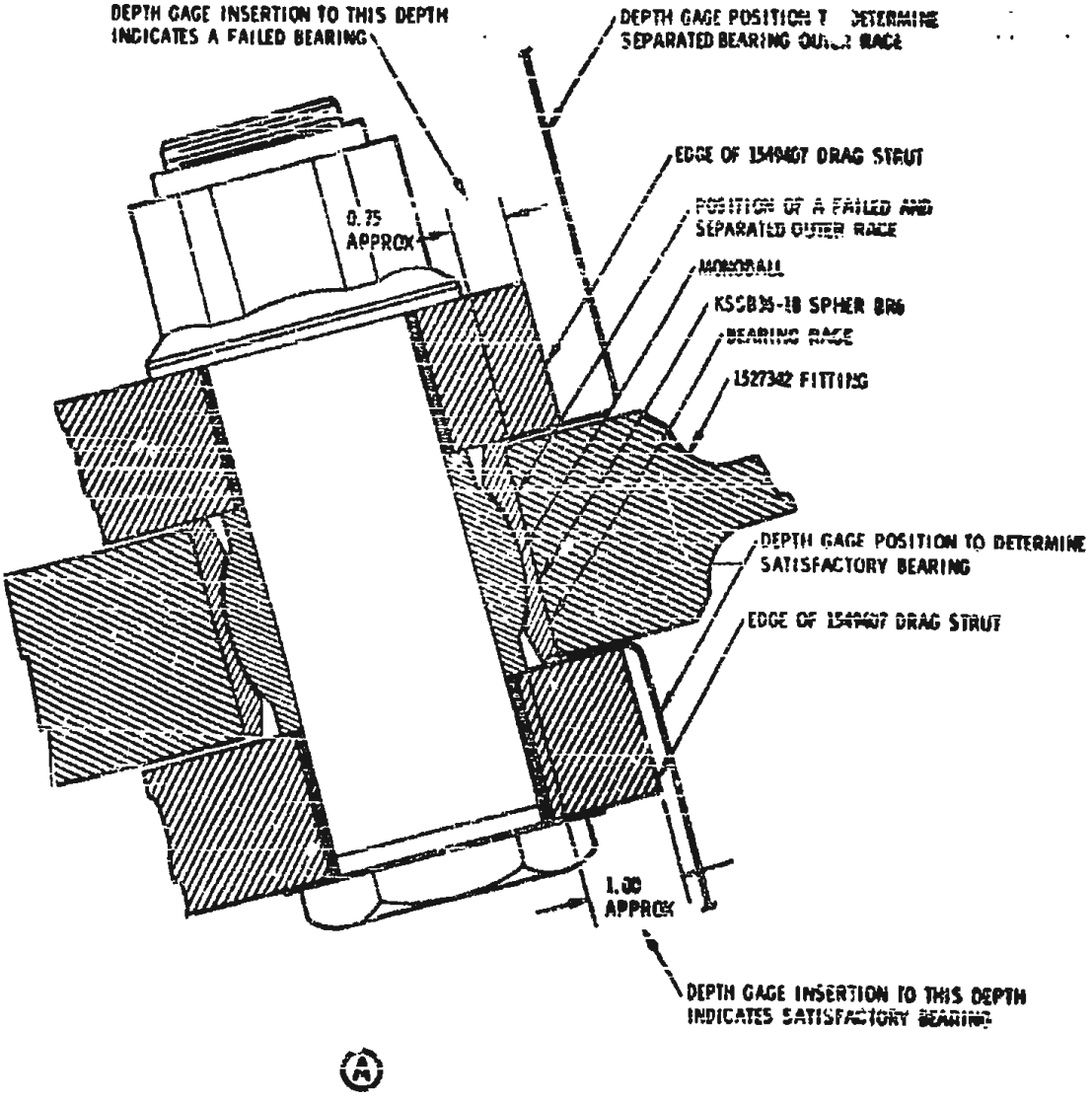
LOOKING INBOARD - LEFT SIDE, OUTBOARD - RIGHT SIDE
1520841 SKIRT ACCESS DOOR IS REMOVED

M1-1533-05-004

R R Engine Pylon Rear Fitting
Figure 602 (Sheet 1)

R R EFFECTIVITY: ALL

0018


DEPTH GAGE INSERTION TO THIS DEPTH INDICATES A FAILED BEARING
DEPTH GAGE POSITION TO DETERMINE SEPARATED BEARING OUTER RACE
EDGE OF 1549407 DRAG STRUT
POSITION OF A FAILED AND SEPARATED OUTER RACE
MONOBALL
KSOB35-1B SPHER BRG
BEARING RACE
1527342 FITTING
0.75 APPROX
DEPTH GAGE POSITION TO DETERMINE SATISFACTORY BEARING
EDGE OF 1549407 DRAG STRUT
1.00 APPROX
DEPTH GAGE INSERTION TO THIS DEPTH INDICATES SATISFACTORY BEARING

M1-15300-05-005

R
R

Engine Pylon Rear Fitting
Figure 602 (Sheet 2)

R
R
R

EFFECTIVITY: ALL

001B

EXTREME DUSTY/SANDY CONDITIONS - INSPECTION AND CHECK

1. General

When the aircraft has been subjected to extreme dusty/sandy conditions, inspection of specified items is recommended.

2. Inspection/Check

A. Inspect the following items for cleanliness. Clean and relubricate as necessary.

(1) Stabilizer trim mechanism.

(2) Flap jack screw and mechanism.

(3) Static vents and pitot probes.

(4) Air conditioning system ram air inlet ducts.

(5) Dual heat exchangers, forward and aft outflow valves.

(6) Main and nose landing gear shock struts (prior to fueling or loading of aircraft).

(7) Leading edge slat actuators and surrounding mechanism (prior to application of hydraulic pressure).

(8) Prior to Engine start:

(a) Engine air inlets.

(b) Turbo compressor inlets.

(c) APU air inlets.

(d) P1 probes.

B. Inspect for condition:

(1) Forward main windshields

R ENGINE PYLON - INSPECTION AND CHECK FOLLOWING DAMAGE TO WING ENGINE COWLINGS

R 1. General

R A. An inspection of the pylon-wing attach points after accidentally striking ground vehicles, stands and other ground objects during taxiing is required:

R (1) If major nose cowl crushing/damage is readily visible.

R (2) If substantial tears and damage are experienced on the sides of the cowl.

R (3) If sections/pieces of the engine cowl are missing from the nacelle.

R (4) If the pylon skin is wrinkled, rivets are pulled or missing.

R 2. Inspection/check

R A. The following inspection procedure should be conducted when the above damage is experienced.

R (1) Visually inspect engine, engine accessories and plumbing for dislocation, distortion and/or external damage.

R (2) Visually inspect fasteners in pylon skins for failure and skins for cracks.

R B. If no damage is found in Step 2A(2), further inspection is not required.

R C. If damage is found in Step 2A(2), then inspect pylon drag strut, and wing to pylon fittings for distortion or cracks.

R TAIL SKID GROUND CONTACT - INSPECTION AND CHECK

R 1. General

R Paragraphs 3A and 3B are procedures which cover the inspection
R and check of the tail skid and surrounding structure, after a
R contact has been made with the runway or ground surface during
R landing or takeoff operations.

R 2. Referenced Procedures

R	24-00-00	Electrical Power - Maintenance Practices
R	29-11-00	Hydraulic Power System - Maintenance Practices
R	32-71-01	Retractable Tail Skid - Removal and Installation
R	78-30-00	Thrust Reverser - Adjustment and Test

R 3. Inspection/Check

R A. Tail Skid and External Surrounding Area Inspection/Check

R NOTE: Total tail skid compression range is 18.84 inches.
R Tail skid can be compressed 10 inches before ground
R contact with the fuselage structure occurs.

R (1) Inspect tail skid shoe for wear. Shoe is operational
R if not worn through, or wear does not exceed a
R 4-1/2-inch diameter flat spot.

R (2) Inspect APU overboard mast for damage. Ensure that
R mast hole is not restricted.

R (3) Inspect water drain mast for damage. Ensure that
R heater is operational and mast hole is not restricted.

R (4) Inspect No. 2 Engine cowls and aft fuselage lower
R surfaces for damage.

R (5) If fuselage skin shows signs of abrasion from ground
R contact, at approximately FS 1760 to FS 1860, perform
R internal/external structural damage inspection,
R Paragraph 3B. If not abraded, proceed to Step (6).

R (6) Inspect tail skid piston for straightness and cracks.
R If piston is not damaged, perform Steps (6)(a) and (b).

If piston is cracked or bent, perform internal/external structural damage inspection, Paragraph 38.

(a) Check tail skid pressure gage. Pressure should be 100 psi when tail skid is extended.

(b) Using ground service control switch, retract and extend tail skid. Check for sticking and leaking fluid.

B. Internal/External Structural Damage Inspection

NOTE: Machined into the tail skid piston are two annular grooves (fuses) in the piston internal walls which purposely weaken the piston structure. These grooves or fuses are for the purpose of causing the piston to break off and carry away, upon excessively hard contact, prior to causing aircraft structural damage.

(1) Inspect fuselage exterior for dents and scraping.

(2) Perform inspection of internal/external areas as follows:

(a) FS 1792 frame (forward of aft pressure dome).

(b) Lower portion of aft pressure dome.

(c) FS 1832, FS 1837, and FS 1850 frames (aft of aft pressure dome).

(d) FS 1860 bulkhead (vertical stiffeners, web, and caps).

(e) FS 1885 bulkhead (APU fwd firewall).

MERCURY-SPILLAGE - INSPECTION AND CHECK

1. General

If mercury is spilled in the aircraft, specific action is required to remove spilled contents, followed by structural inspection and remedial action as may be required.

WARNING: MERCURY (OR QUICKSILVER), ITS VAPOUR AND ITS SALTS ARE BOTH TOXIC AND CORROSIVE. CONSEQUENTLY, CARE MUST BE TAKEN TO PREVENT ANY OF THESE SUBSTANCES FROM BEING INHALED OR SWALLOWED, OR FROM CONTACTING THE SKIN. THUS, IN THE EVENT OF AN OPERATOR COMING INTO CONTACT WITH MERCURY, HE SHOULD NOT BLOW HIS NOSE, SMOKE OR EAT, BUT SHOULD WASH HIS HANDS IMMEDIATELY WITH SOAP AND HOT WATER.

CAUTION: IF MERCURY IS SPILLED IN AN AIRCRAFT, THE STRUCTURE MUST BE DECONTAMINATED WITHOUT DELAY IN THE FOLLOWING MANNER.

2. Equipment and Materials

R Mercury Spillage Kit, P/N 17-739, Lab Safety Supply Inc., 3430
R Palmer Dr., P.O. Box 1368, Janesville, WI. 53547, or equivalent

3. Precautions

A. The following precautions shall be observed:

(1) Fully report the incident.

(2) Block off the contaminated area and ensure that only personnel responsible for decontamination have access to the area.

(3) Ensure that all personnel responsible for decontamination are wearing protective clothing and rubber gloves.

(4) Ensure that the contaminated area is adequately ventilated.

(5) Avoid contact with the surfaces suspected of being contaminated by using wood or fibre sheets to support the body while working in the contaminated area.

(6) Do not wear clothing used in contaminated areas on jobs in uncontaminated areas.

(7) Clean all tools that have been used in contaminated areas with steam or soap and hot water.

(8) After the decontamination procedure has been carried out, remove and discard protective clothing and wash hands thoroughly with soap and hot water.

4. Decontamination Procedure

A. If spillage occurs while aircraft is away from base, the following action shall be taken:

(1) Refer to the precautions given in Paragraph 3.

(2) Locate and remove the source of contamination from the aircraft taking care to prevent further spillage.

CAUTION: IT IS ESSENTIAL THAT ALL VISIBLE MERCURY IS REMOVED FROM THE FLOOR PANELS IN ORDER TO PREVENT THE SPREADING OF MERCURY WHEN THE PANELS ARE RAISED.

R (3) Before removing freight floor panels, remove all visible mercury by sweeping it up carefully with a paint brush onto a stiff sheet of paper or into a bag.

(4) Remove freight floor panels and ascertain as far as possible, the area of contamination.

(5) Contain the mercury spillage within the contaminated area by plugging all structural joints, etc. Mark the contaminated area with chalk or marker pen.

CAUTION: DO NOT ATTEMPT TO REMOVE MERCURY FROM THE AIRCRAFT BY APPLYING AIR PRESSURE, WATER OR ANY OTHER FLUID, OR BY MOPPING UP WITH A CLOTH.

(6) Remove all traces of mercury, as far as possible as described in Step (2).

(7) Without delay take the appropriate action to route the aircraft to base for a complete decontamination
R inspection as detailed in Paragraph 4B, Steps (3) to (11) inclusive.

B. If spillage occurs when aircraft is at base, the following action shall be taken:

NOTE: The Mercury Spillage Kit will be required in this procedure.

R (1) Refer to the precautions given in Paragraph 3.

(2) Locate and remove the source of contamination from the aircraft taking care to prevent further spillage.

(3) Before removing freight floor panels, carry out a radiographic inspection to ascertain the mercury spillage.

CAUTION: IT IS ESSENTIAL THAT ALL MERCURY IS REMOVED FROM THE FLOOR PANELS IN ORDER TO PREVENT THE SPREADING OF MERCURY WHEN THE PANELS ARE RAISED.

(4) Remove mercury spillage on freight floor panels using mercury spillage kit.

R R NOTE: Instructions for removal of spilled mercury are contained in the mercury spillage kit.

(5) Remove freight floor panels.

(6) Carry out further radiographic inspection to ascertain the mercury spillage below the freight floor.

(7) Remove mercury using mercury spillage kit.

CAUTION: CORROSION WILL APPEAR AS A GREY FLUFF OR DUST AND WILL BE FOLLOWED BY COMPLETE STRUCTURAL DISINTEGRATION IF THE EFFECTED STRUCTURE OR COMPONENT IS NOT RENEWED.

(8) Examine structure and components within the contaminated area for corrosion.

(9) Renew all corroded structure or components.

(10) Carry out a further radiographic inspection to ensure that the mercury has been removed.

(11) As mercury may form very small globules, complete removal is not always possible. Therefore, lightly smear the area with oil to prevent any remaining mercury causing corrosion.

R R # STRUCTURAL STRENGTH REDUCTION DUE TO OVERHEAT INSPECTION AND CHECK

R 1. General

R R R R R In the event of a major pneumatic duct rupture between the engines/APU and the primary heat exchangers, aircraft structure in the immediate area may be subjected to temperatures which could cause metallurgical changes, resulting in a reduction of structural strength.

R R The following procedure is provided to determine the extent of structural strength reduction.

R R NOTE: This inspection procedure should be carried out prior to the next flight, following a major rupture.

R 2. Referenced Procedures

R R R MIL-STD-1537A (USAF) - Electrical Conductivity Test for measurement of Heat Treatment of Aluminum Alloys, Eddy Current Method

R L-1011 Structural Repair Manual

R Lockheed Corporate Process Specification LCP86-2184

R R Lockheed Overhaul Manual 20-76-03, Removal of Epoxy and Polyurethane Paint from Interior Parts and Surfaces

R R Lockheed Overhaul Manual 20-78-05, Touchup Requirements for Finishes on L-1011 Aircraft

R R Lockheed Overhaul Manual 20-78-06, Application of Phosphate Ester Resistant Primer

R R Lockheed Overhaul Manual 20-78-07, Application of Weather Resistant Polyurethane Enamel

R 3. Equipment and Materials

R Magnaflux Eddy Current Inspection Tester Model No. ED520, or
R equivalent

R Barcol Impressor, Barber Colman Part No. 934-1, Riehle Portable
R Hardness Tester Model No. PHT-1, or equivalent

R MIL-T-81533 Trichloroethane

R Rubber gloves

R Airline Respirator, Bureau of Mines approved, Mines Safety
R Appliance Co., or equivalent

R 4. Inspection and Check

R A. Eddy Current Tester Calibration

R This calibration is required to establish a base line for
R comparison with the suspected area of damage.

R WARNING: WHEN USING SOLVENTS:

R PROVIDE POSITIVE FORCED AIR VENTILATION. USE A
R RESPIRATOR WHEN WORKING IN A CONFINED SPACE. DO
R NOT INHALE VAPORS. USE RUBBER GLOVES, AVOID
R CONTACT WITH SKIN, EYES, AND MUCUS MEMBRANES.
R KEEP AWAY FROM HEAT, SPARKS, OPEN FLAME AND OTHER
R IGNITION SOURCES.

R (1) In an area of similar construction and identical
R material (Ref. Structural Repair Manual), not having
R been exposed to high temperature air, proceed as
R follows.

R (a) Remove surface contamination and paint from a
R circular area approximately two inches in
R diameter.

R (b) Take eddy current reading from cleaned area and
R record (Ref. MIL-STD-1537A). This reading will be
R used as the test control or base line for mapping
R the area of strength reduction.

R NOTE: Maintain maximum contact between tester
R probe and surface of metal to ensure
R accuracy of reading.

R B. Inspection

R The following procedure is used to evaluate areas of the
R aircraft suspected of having experienced an overheating of
R structure or where localized paint damage is evident,
R following a major duct rupture.

R WARNING: WHEN USING SOLVENTS:

R PROVIDE POSITIVE FORCED AIR VENTILATION. USE A
R RESPIRATOR WHEN WORKING IN A CONFINED SPACE. DO
R NOT INHALE VAPORS. USE RUBBER GLOVES, AVOID
R CONTACT WITH SKIN, EYES, AND MUCUS MEMBRANES.
R KEEP AWAY FROM HEAT, SPARKS, OPEN FLAME AND OTHER
R IGNITION SOURCES.

R (1) Clean suspect area of dirt and contamination using
R trichoroethane, or equivalent. Wipe dry with clean
R cotton cloth.

R (2) Remove paint and sealants from suspect area (Overhaul
R Manual 20-76-03).

R (3) Starting at the periphery of suspect area, perform eddy
R current inspection of entire area (Ref. MIL-STD-1537A).

R (4) Using control reading obtained in Step 4.A.(1)(b) as a
R base line, accurately map the entire area to determine
R extent of possible strength reduction.

R NOTE: If suspect area produces no eddy current
R readings 2 points or more in excess of control
R readings, no further testing is required.
R Proceed to Paragraph 5B.

R (5) In areas where readings exceed the control reading by 2
R points or more, perform material hardness test. Record
R readings and map.

R (6) Submit results of hardness test and map of area to
R Lockheed for disposition.

R 5. Return Aircraft to Service

R A. Structural Repair

R (1) Following evaluation of hardness measurements, if
R repairs are required, repair in accordance with
R procedures prescribed by Lockheed.

R WARNING: WHEN USING SOLVENTS:

R PROVIDE POSITIVE FORCED AIR VENTILATION. USE A
R RESPIRATOR WHEN WORKING IN A CONFINED SPACE. DO NOT
R INHALE VAPORS. USE RUBBER GLOVES, AVOID CONTACT WITH
R SKIN, EYES, AND MUCUS MEMBRANES. KEEP AWAY FROM HEAT,
R SPARKS, OPEN FLAME AND OTHER IGNITION SOURCES.

R B. Painting

R (1) Touchup paint in area used for eddy current control
R reading in accordance with Overhaul Manual 20-78-05.

R (2) After suspect area is repaired or determined to be
R acceptable, repaint area in accordance with Overhaul
R Manual 20-78-06 and 20-78-07 as applicable.

R HIGH DRAG/SIDE LOAD CONDITION - INSPECTION AND CHECK

R 1. General

R If an aircraft skids or overruns from the prepared surface onto
R an unprepared surface, or lands short of the prepared surface,
R or makes a landing which involves the blowing of three or more
R tires, or skids on the runway to the extent that the normal
R control of the aircraft was in question, the following
R inspection shall be performed.

R 2. Inspection/Check

R A. Perform an inspection of the nose and main landing gears to
R detect evidence of damage, distortion, cracks, and for loose
R or missing fasteners at the following locations:

R (1) MLG trunnion, upper side brace and lateral brace attach
R points.

R (2) MLG side brace/main strut interface.

R (3) MLG torque arms and attachments.

R (4) MLG and NLG strut for leakage and proper extension.

R (5) Tires for scrubbing, cuts and proper inflation.

R (6) Wheels.

R B. If Items (1), (2) or (3) above are found damaged, inspect
R the main gear trunnion beam attachment at the wing rear beam
R for cracks, buckling and for loose fasteners. Inspect for
R evidence of fuel leakage around periphery of fastener.
R nuts.